

CYTRX CORP
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Registration No. 333-217184

PROSPECTUS SUPPLEMENT

(To Prospectus dated April 21, 2017)

5,600,000 Shares of Common Stock

We are offering 5,600,000 shares of our common stock, par value \$0.001 per share, at an offering price of \$1.25 per share.

Our common stock is listed on the Nasdaq Capital Market under the symbol "CYTR." On May 9, 2018, the closing price of our common stock as reported on the Nasdaq Capital Market was \$2.01 per share.

As of the date of this prospectus supplement, the aggregate market value of our outstanding common stock held by non-affiliates, or public float, was approximately \$50.6 million, based on 25,179,899 shares of outstanding common stock held by non-affiliates as of the date of this prospectus supplement, at a price of \$2.01 per share, which was the last reported sale price of our common stock on the Nasdaq Capital Market on May 9, 2018. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on the registration statement of which this prospectus supplement is a part in a primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below \$75.0 million. Other than the securities offered by this prospectus supplement, we have not sold any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus supplement.

Investing in our shares involves a high degree of risk. Please read "Risk Factors" beginning on page S-6 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Total
Offering price	\$ 1.25	\$7,000,000
Placement agent fees ⁽¹⁾	\$ 0.075	\$420,000
Proceeds to CytRx Corporation before expenses	\$ 1.175	\$6,580,000

⁽¹⁾ In addition, we have agreed to reimburse the placement agent for certain expenses as described in the “Plan of Distribution” section of this prospectus supplement.

We have engaged H.C. Wainwright & Co., LLC (“Wainwright” or the “Placement Agent”) to act as our exclusive placement agent in connection with this offering. Wainwright is not purchasing or selling the shares offered by us, and is not required to sell any specific number or dollar amount of shares, but will use its reasonable best efforts to arrange for the sale of the shares offered. We have agreed to pay to the Placement Agent the placement agent fees set forth in the table above, which assumes that we sell all of the common stock offered by this prospectus supplement. See “Plan of Distribution” on page S-14 of this prospectus supplement for more information regarding these arrangements. We estimate total expenses of this offering, excluding the placement agent fees, will be approximately \$60,000. Because there is no minimum offering amount required as a condition to closing in this offering, the actual offering amount, placement agent fees and proceeds to us, if any, are not presently determinable and may be substantially less than the total amounts set forth above. We have not arranged to place the funds from investors in an escrow, trust or similar account.

Delivery of the shares of common stock is expected to be made on or about May 15, 2018, subject to customary closing conditions.

H.C. Wainwright & Co.

Prospectus Supplement dated May 11, 2018

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is part of the registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process and consists of two parts. The first part is this prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference, gives more general information, some of which may not apply to this offering. Generally, when we refer only to the “prospectus,” we are referring to both parts of this document combined. This prospectus supplement may add to, update or change information in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement or the accompanying prospectus.

If information in this prospectus supplement is inconsistent with the accompanying prospectus or with any document incorporated by reference that was filed with the SEC before the date of this prospectus supplement, you should rely on this prospectus supplement. This prospectus supplement, the accompanying prospectus and the documents incorporated into each by reference include important information about us, the shares being offered and other information you should know before investing in our shares. You should also read and consider information in the documents we have referred you to in the sections of this prospectus supplement and the accompanying prospectus entitled “Where You Can Find More Information.”

You should rely only on this prospectus supplement, the accompanying prospectus and any free writing prospectus we may provide to you in connection with this offering and the information incorporated or deemed to be incorporated by reference therein. We have not authorized anyone to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are not offering to sell these shares in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than as of the date of this prospectus supplement or the accompanying prospectus, as the case may be, or in the case of the documents incorporated by reference, the date of such documents regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or any sale of our shares. Our business, financial condition, liquidity, results of operations and prospects may have changed since those dates.

NOTE ON FORWARD-LOOKING STATEMENTS

Some of the statements contained or incorporated by reference in this prospectus supplement or in the accompanying prospectus may include forward-looking statements that reflect our current views with respect to our research and development activities, business strategy, business plan, financial performance and other future events. These statements include forward-looking statements both with respect to us, specifically, and the biotechnology sector, in

general. Statements that include the words “expect,” “intend,” “plan,” “believe,” “project,” “estimate,” “may,” “should,” “anticipate” and similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the federal securities laws or otherwise.

All forward-looking statements involve inherent risks and uncertainties, and there are or will be important factors that could cause actual results to differ materially from those indicated in these statements. We believe that these factors include, but are not limited to, those factors set forth under the caption “Risk Factors” in this prospectus supplement and under the captions “Business,” “Risk Factors,” “Legal Proceedings,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” “Quantitative and Qualitative Disclosures About Market Risk” and “Controls and Procedures” in our most recent Annual Report on Form 10-K, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus supplement. We undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

If one or more of these or other risks or uncertainties materializes, or if our underlying assumptions prove to be incorrect, actual results may vary materially from what we anticipate. All subsequent written and oral forward-looking statements attributable to us or individuals acting on our behalf are expressly qualified in their entirety by this Note. Before purchasing any of our shares, you should consider carefully all of the factors set forth or referred to in this prospectus supplement that could cause actual results to differ.

INDUSTRY DATA

Unless otherwise indicated, information contained or incorporated by reference in this prospectus supplement concerning our industry, including our general expectations and market opportunity, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry's future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those referred to under "Risk Factors" beginning on page S-6 of this prospectus supplement. These and other factors could cause our future performance to differ materially from our assumptions and estimates.

TRADEMARKS

CytRx and LADR are some of our trademarks used in this prospectus supplement. This prospectus supplement also includes trademarks, trade names and service marks that are the property of other organizations. Solely for convenience, trademarks and trade names referred to in this prospectus supplement sometimes appear without the ® and ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and trade names.

SUMMARY OF PROSPECTUS SUPPLEMENT

Company Overview

CytRx Corporation (“we,” “us,” “our,” “CytRx” or the “company”) is a biopharmaceutical research and development company specializing in oncology. Our focus is on the discovery, research and clinical development of novel anti-cancer drug candidates that employ novel linker technologies to enhance the accumulation and release of cytotoxic anti-cancer agents at the tumor. Since 2008, we have worked to develop aldoxorubicin. In July 2017, we entered into an exclusive worldwide license under which NantCell, Inc. took over development of aldoxorubicin, invested in our common stock and agreed to make future milestone and royalty payments upon the successful development and commercialization of aldoxorubicin. We are now actively pursuing new anti-cancer compounds through our drug discovery and research operation at our laboratory facilities in Freiburg, Germany led by Felix Kratz, Ph.D., Vice President of Drug Discovery and inventor of aldoxorubicin.

LADR Drug Discovery Platform

The LADR™ (Linker Activated Drug Release) technology platform is a discovery engine combining our expertise in linker chemistry and albumin biology to create a pipeline of anti-cancer molecules that will avoid unacceptable systemic toxicity while delivering highly potent agents directly to the tumor. We have created a “toolbox” of linker technologies that have the ability to significantly increase the therapeutic index of ultra-high potency drugs (10-1,000 times more potent than traditional chemotherapies) by controlling the release of the drug payloads and improving drug-like properties.

Our current efforts are focused on two classes of ultra-high potency albumin-binding drug conjugates. These drug conjugates combine our proprietary LADR™ linkers with novel derivatives of the auristatin and maytansinoid drug classes. These payloads historically have required a targeting antibody for successful administration to humans. Our drug conjugates eliminate the need for a targeting antibody and provide a small molecule therapeutic option with potential broader applicability.

Our postulated mechanism of action for the albumin-binding drug conjugates is as follows:

after administration, the linker portion of the drug conjugate forms a rapid and specific covalent bond to the cysteine-34 position of circulating albumin;

circulating albumin preferentially accumulates at the tumors, bypassing concentration in other non-tumor sites, including the heart, liver and gastrointestinal tract due to a mechanism called “Enhanced Permeability and Retention”;

once localized at the tumor, the acid-sensitive linker is cleaved due to the specific conditions within the tumor and in the tumor microenvironment; and

free active drug is then released.

Our strategy across these programs is to generate additional pre-clinical data that will allow them to make informed decisions regarding the selection of one or both programs for moving into human clinical trials either independently or on a partnered basis.

We recently entered into an agreement with Destum Partners, Inc., a leading strategic advisory firm serving companies in the life sciences industry, to assist in our pharma partnering activities. Destum will be our exclusive advisor for the identification of partnership opportunities for LADR™ ultra-high potency drug conjugates.

During 2017, our discovery laboratory synthesized and tested over 75 rationally designed drug conjugates with highly potent cytotoxic payloads, and two distinct classes of compounds have been created. To date, four lead candidates have been selected based on *in vitro* and animal preclinical studies, stability, and manufacturing feasibility.

Additional animal efficacy and toxicology testing of these lead candidates is underway.

Aldoxorubicin

Until July 2017, we were focused on the research and clinical development of aldoxorubicin, our modified version of the widely-used chemotherapeutic agent, doxorubicin. Aldoxorubicin combines the chemotherapeutic agent doxorubicin with a novel linker-molecule that binds specifically to albumin in the blood to allow for delivery of higher amounts of doxorubicin (3½ to 4 times) without several of the major dose-limiting toxicities seen with administration of doxorubicin alone.

On July 27, 2017, we entered into an exclusive worldwide license with NantCell, Inc. (“NantCell”), granting to NantCell the exclusive rights to develop, manufacture and commercialize aldoxorubicin in all indications, and our company is no longer directly working on development of aldoxorubicin. As part of the license, NantCell made a strategic investment of \$13 million in CytRx common stock at \$6.60 per share (adjusted to reflect our 2017 reverse stock split), a premium of 92% to the market price on that date. We also issued NantCell a warrant to purchase up to 500,000 shares of common stock at \$6.60 over the following 18 months. We are entitled to receive up to an aggregate of \$343 million in potential milestone payments contingent upon achievement of certain regulatory approvals and commercial milestones. We are also entitled to receive ascending double-digit royalties for net sales for soft tissue sarcomas and mid to high single digit royalties for other indications.

Aldoxorubicin is a conjugate of the commonly prescribed chemotherapeutic agent doxorubicin that binds to circulating albumin in the bloodstream and is believed to concentrate the drug at the site of the tumor. Aldoxorubicin, our lead clinical candidate, has been tested in over 600 patients with various types of cancer. Specifically, it is comprised of (6-maleimidocaproyl) hydrazine, an acid-sensitive molecule that is conjugated to doxorubicin. The initial indication for aldoxorubicin is for patients with advanced soft tissue sarcomas (STS).

Aldoxorubicin has received Orphan Drug Designation (ODD) by the U.S. FDA for the treatment of STS. ODD provides several benefits including seven years of market exclusivity after approval, certain R&D related tax credits, and protocol assistance by the FDA. European regulators granted aldoxorubicin Orphan designation for STS which confers ten years of market exclusivity among other benefits.

In the first quarter of 2018, we announced that NantCell was expanding aldoxorubicin’s use by combining it with immunotherapies and cell-based treatments, specifically in metastatic pancreatic cancer and in advanced squamous cell carcinoma of the head and neck or non-small cell lung cancer.

Corporate Information

We are a Delaware corporation, incorporated in 1985. Our corporate offices are located at 11726 San Vicente Boulevard, Suite 650, Los Angeles, California 90049, and our telephone number is (310) 826-5648. Our web site is located on the worldwide web at <http://www.cytrx.com>. We do not incorporate by reference into this prospectus supplement the information on, or accessible through, our website, and you should not consider it as part of this prospectus supplement.

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THE OFFERING

Common stock offered by us 5,600,000 shares.

Offering price \$1.25 per share of common stock

Common stock to be outstanding after this offering 33,637,501 shares.

Use of proceeds We intend to use the net proceeds from the sale of shares offered by this prospectus supplement for working capital and general corporate purposes, including possible new drug discovery activities and acquisitions or mergers. General corporate purposes also may include payment of general and administrative expenses and capital expenditures, repayment of our outstanding indebtedness and payments in connection with possible future strategic transactions. See “Use of Proceeds.”

Risk factors See “Risk Factors” beginning on page S-6 of this prospectus supplement for a discussion of factors you should read and consider carefully before investing in our shares.

Nasdaq Capital Market symbol CYTR

Except as otherwise indicated, all information in this prospectus supplement:

is based on 28,037,501 shares of common stock outstanding on March 31, 2018;

excludes 2,772,755 shares of our common stock subject to options outstanding as of March 31, 2018, having a weighted-average exercise price of \$10.86 per share; and

excludes 3,980,781 shares of our common stock reserved for issuance upon exercise of outstanding warrants as of March 31, 2018, having a weighted-average exercise price of \$4.26 per share.

RISK FACTORS

Investment in any securities offered pursuant to this prospectus supplement and the accompanying prospectus involves high degree of risk. You should carefully consider the risk factors set forth below and incorporated by reference from our Annual Report on Form 10-K for the year ended December 31, 2017 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 or Current Reports on Form 8-K that we have or will file after the date of this prospectus supplement and the accompanying prospectus, and all other information contained or incorporated by reference into this prospectus supplement and the accompanying prospectus, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended (“Exchange Act”), and any free writing prospectus that we have authorized for use in connection with this offering, before you make a decision to invest in our securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities. These risks are not the only ones we face. Additional risks we are not presently aware of or that we currently believe are immaterial may also impair our business operations.

Risks Associated With This Offering

Our management will have broad discretion as to the use of the net proceeds of this offering, and you will have no information regarding the actual use of the net proceeds.

We have not designated the amount of net proceeds from this offering to be used for any particular purpose. Accordingly, our management will have broad discretion as to the application of the net proceeds and could use them for purposes other than those contemplated at the time of this offering. You will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. The net proceeds may be used for corporate purposes that do not increase our operating results or enhance the value of our common stock. Accordingly, our stockholders may not benefit from the manner in which our management actually allocates and spends the net proceeds of this offering.

You will experience immediate and substantial dilution in the net tangible book value per share of the stock you purchase.

You will suffer substantial dilution. See “Dilution” in this prospectus supplement for more information of the dilution you will incur in this offering.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

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USE OF PROCEEDS

We estimate that the net proceeds of this offering, after deducting the placement agent fees and estimated offering expenses payable by us, will be approximately \$6.5 million.

We intend to use the net proceeds from the sale of shares offered by this prospectus supplement for working capital and general corporate purposes, including possible new drug discovery activities and acquisitions or mergers. General corporate purposes also may include payment of general and administrative expenses and capital expenditures and repayment of our outstanding indebtedness. We also may use a portion of the net proceeds for payments in connection with possible future strategic transactions, although we have no understanding or agreement for any transaction.

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DIVIDEND POLICY

We have never declared or paid cash dividends on our common stock, and we have agreed in the loan and security agreement relating to our outstanding term loans not to pay any cash dividend on any class of our stock. We currently intend to retain our future earnings, if any, for use in our business and therefore do not anticipate paying cash dividends in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, and current and anticipated cash needs.

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CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of March 31, 2018:

on an actual basis; and

on an as adjusted basis to give effect to the issuance of 5,600,000 shares of our common stock at the offering price of \$1.25 per share, after deducting the placement agent fees and the estimated offering expenses payable by us.

The information set forth in the following table should be read in conjunction with and is qualified in its entirety by our “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and consolidated financial statements and notes thereto incorporated by reference in this prospectus supplement and the accompanying prospectus. See “Summary—The Offering” in this prospectus supplement for information relating to the expected number of shares of our common stock to be outstanding after this offering.

(unaudited)	As of MARCH 31, 2018	
	Actual	As Adjusted
Cash and cash equivalents	\$35,097,042	\$41,617,042
Total assets	\$43,127,483	\$49,647,483
Total liabilities	\$21,874,741	\$21,874,741
Stockholders’ equity:		
Preferred Stock, \$0.01 par value, 833,334 shares authorized, including 4,167 shares of Series A Junior Participating Preferred Stock; no shares issued and outstanding	\$—	\$—
Preferred Stock, \$1,000 stated value, 650 shares authorized, no shares issued and outstanding	—	—
Common stock, \$0.001 par value, 41,666,667 shares authorized; 28,037,501 shares issued and outstanding	\$28,037	\$33,637
Additional paid-in capital	\$469,450,756	\$475,965,156
Accumulated deficit	\$(448,226,051)	\$(448,226,051)
Total stockholders’ equity	\$21,252,742	\$27,772,742
Total liabilities and stockholders’ equity	\$43,127,483	\$49,647,483
Total capitalization	\$43,127,483	\$49,647,483

The above table is based on 28,037,501 shares of common stock outstanding on March 31, 2018 and excludes:

2,772,755 shares of our common stock subject to options outstanding as of March 31, 2018, having a weighted-average exercise price of \$10.86 per share; and

3,980,781 shares of our common stock reserved for issuance upon exercise of outstanding warrants as of March 31, 2018, having a weighted-average exercise price of \$4.26 per share.

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DILUTION

Purchasers of shares in this offering will suffer immediate and substantial dilution in the net tangible book value per share of our common stock. Our net tangible book value as of March 31, 2018 was approximately \$0.75 per share of our common stock. Net tangible book value per share represents the amount of total tangible assets less total liabilities divided by the number of shares of our common stock outstanding as of March 31, 2018.

Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers in this offering and the net tangible book value per share of our common stock immediately after this offering. After giving effect to the sale of 5,600,000 shares in this offering at an offering price of \$1.25 per share, and after deducting the placement agent fees and the estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2018 would have been approximately \$0.82 per share of our common stock. This represents an immediate increase in net tangible book value of \$0.07 per share of our common stock to our existing stockholders and an immediate dilution in net tangible book value of \$0.43 per share of our common stock to investors participating in this offering. The following table illustrates this per share dilution:

Offering price per share	\$1.25
Net tangible book value per share as of March 31, 2018	\$0.75
Increase per share attributable to this offering	\$0.07
As adjusted net tangible book value per share as of March 31, 2018 after this offering	\$0.82
Dilution per share to new investors participating in this offering	\$0.43

The above table is based on 28,037,501 shares of common stock outstanding on March 31, 2018 and excludes:

2,772,755 shares of our common stock subject to options outstanding as of March 31, 2018, having a weighted-average exercise price of \$10.86 per share; and

3,980,781 shares of our common stock reserved for issuance upon exercise of outstanding warrants as of March 31, 2018, having a weighted-average exercise price of \$4.26 per share.

To the extent that any outstanding options or warrants are exercised, new options are issued under our stock option plans or we otherwise issue additional shares of common stock in the future at a price less than the offering price, there may be further dilution to purchasers of shares in this offering.

DESCRIPTION OF COMMON STOCK

We are offering 5,600,000 shares of our common stock.

General

As of March 31, 2018, our authorized capital stock consisted of 41,666,667 shares of common stock, \$0.001 par value per share, of which 28,037,501 shares were outstanding; 833,334 shares of preferred stock, \$0.01 par value per share, of which 4,167 shares were designated as Series A Junior Participating Preferred Stock and no shares have been issued and outstanding; and 650 shares of preferred stock, \$1,000 stated value, of which no shares have been issued and outstanding.

We have reserved all of the shares of our Series A Junior Participating Preferred Stock for issuance upon the exercise of the rights under our Shareholder Protection Rights Agreement described below.

Our board of directors has the authority to issue shares of our authorized and unissued preferred stock in one or more series and to fix the rights of each series. These rights may include dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences, sinking fund terms, and the number of shares that constitute any series. The board of directors may exercise this authority without any further action by our stockholders.

The following summary of certain provisions of our common stock does not purport to be complete. You should refer to our amended and restated certificate of incorporation and our restated by-laws, which are filed with or incorporated by reference in the registration statement relating to this offering filed by us with the SEC. The summary below is also qualified by reference to the provisions of applicable Delaware corporation law.

Common Stock

Each holder of our common stock is entitled to one vote for each share of common stock held on all matters submitted to a vote of stockholders. Common stockholders are not entitled to cumulative voting in the election of directors by our certificate of incorporation. Subject to preferences that may apply to shares of preferred stock outstanding at the

time, the holders of outstanding shares of our common stock are entitled to receive dividends out of assets legally available at the times and in the amounts that our board of directors may determine from time to time.

Upon our liquidation, dissolution or winding-up, the holders of our common stock will be entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any series of capital stock ranking senior to the common stock upon liquidation. Holders of common stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable, and the shares of common stock to be issued under this prospectus supplement, when they are paid for, will be fully paid and non-assessable.

Anti-Takeover Measures

Delaware Law

Section 203 of the Delaware General Corporation Law is applicable to takeovers of certain Delaware corporations, including us. Subject to exceptions enumerated in Section 203, Section 203 provides that a corporation shall not engage in any business combination with any “interested stockholder” for a three-year period following the date that the stockholder becomes an interested stockholder unless:

prior to that date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, though some shares may be excluded from the calculation; or

on or subsequent to that date, the business combination is approved by the board of directors of the corporation and by the affirmative votes of holders of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Except as specified in Section 203, an interested stockholder is generally defined to include any person who, together with any affiliates or associates of that person, beneficially owns, directly or indirectly, 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation, any time within three years immediately prior to the relevant date. Under certain circumstances, Section 203 makes it more difficult for an interested stockholder to effect various business combinations with a corporation for a three-year period, although the stockholders may elect not to be governed by this section, by adopting an amendment to the certificate of incorporation or by-laws, effective 12 months after adoption. Our amended and restated certificate of incorporation and our restated by-laws do not opt out from the restrictions imposed under Section 203. We anticipate that the provisions of Section 203 may encourage companies interested in acquiring us to negotiate in advance with the board because the stockholder approval requirement would be avoided if a majority of the directors then in office excluding an interested stockholder approve either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder. These provisions may have the effect of deterring hostile takeovers or delaying changes in control, which could depress the market price of our common stock and deprive stockholders of opportunities to realize a premium on shares of common stock held by them.

Charter and By-Law Provisions

In addition to the board of directors' ability to issue shares of preferred stock, our amended and restated certificate of incorporation and restated by-laws contain the following provisions that may have the effect of discouraging unsolicited acquisition proposals:

our restated by-laws classify the board of directors into three classes with staggered three-year terms;

under our restated by-laws, our board of directors may enlarge the size of the board and fill the vacancies;

our restated by-laws provide that a stockholder may not nominate candidates for the board of directors at any annual or special meeting unless that stockholder notifies us of its intention a specified period in advance and provides us with certain required information;

stockholders who wish to bring business before the stockholders at our annual meeting must provide advance notice; and

our restated by-laws provide that special meetings of stockholders may only be called by our board of directors or by an officer so instructed by our board.

Our restated by-laws also provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for:

any derivative action or proceeding brought on our behalf;

any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the company to us or our stockholders;

any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law; or

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any action asserting a claim governed by the internal affairs doctrine.

Our restated bylaws further provide that any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the company is deemed to have notice of and consented to the foregoing provision.

Shareholder Protection Rights Agreement

Our board of directors adopted a Shareholder Protection Rights Agreement, or Rights Agreement, dated April 16, 1997, as amended, between us and American Stock Transfer & Trust Co., as Rights Agent. The Rights Agreement will expire on April 16, 2022, unless renewed or extended by our board of directors. A series of our preferred stock, designated as Series A Junior Participating Preferred Stock, par value \$0.01 per share, was created in accordance with the Rights Agreement. The Rights Agreement is designed to deter coercive takeover tactics, including the accumulation of shares in the open market or through private transactions, and to prevent an acquirer from gaining control of us without offering a fair and adequate price and terms to all of our stockholders. As such, the Rights Agreement is intended to enhance our board of directors' ability to protect stockholder interests and help to assure that stockholders receive fair and equal treatment in the event any proposed takeover of our company is made in the future. Pursuant to the Rights Agreement, our board of directors declared a dividend distribution of one preferred stock purchase right for each outstanding share of our common stock. The preferred stock purchase rights are attached to, and trade with, our common stock. The purchase rights are exercisable only upon the occurrence of certain triggering events described in the Rights Agreement.

Transfer Agent

The transfer agent for our common stock is American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005.

Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol "CYTR."

PLAN OF DISTRIBUTION

We are offering up to 5,600,000 shares of our common stock. However, there is no minimum offering amount required as a condition to closing, and we may sell significantly fewer shares. We expect to deliver the shares being offered pursuant to this prospectus supplement on or about May 15, 2018, subject to customary closing conditions.

In determining the offering price of the shares, we have considered a number of factors including, but not limited to, the current market price of our common stock, trading prices of our common stock over time, the liquidity and volatility of our common stock, our current financial condition, expressions of interest from prospective investors in the offering and market and economic conditions at the time of the offering. Once the offering price is determined, the offering price for the shares will remain fixed for the duration of the offering.

H. C. Wainwright & Co., LLC, or Wainwright or the placement agent, has agreed to act as our exclusive placement agent in connection with the offering pursuant to the terms and conditions of an engagement letter. The placement agent is not purchasing or selling any shares offered by this prospectus supplement, and is not required to arrange for the purchaser or sale of any specific number or dollar amount of shares, but will use its reasonable best efforts to arrange for the sale of up to all of the shares offered by this prospectus supplement. The placement agent will arrange for the sale of the securities in the offering pursuant to this prospectus supplement to investors through a securities purchase agreement to be entered into directly between the purchasers and us, providing investors with certain representations, warranties and covenants from us.

We have agreed to pay to the placement agent the placement agent fees set forth in the table below, which assumes that we sell all of the common stock offered by this prospectus supplement. In addition, we have agreed to pay the placement agent for offering expenses in the non-accountable sum of \$25,000 and reimburse the placement agent for the actual out-of-pocket cost of the placement agent's clearing agent in connection with settlement in an amount not to exceed \$10,000, subject to compliance with FINRA Rule 5110(f)(2)(D)(i). We estimate total expenses of this offering, including the placement agent expenses, will be approximately \$60,000. The following table shows the per share and total fees we will pay to the placement agent assuming the sale of all of the shares being offered.

Per share \$0.075

Total \$420,000

In addition, we have granted to the placement agent a right to act as joint lead manager with respect to additional raises of funds by means of an offering or private placement of equity or debt securities using an underwriter or placement agent or financing any indebtedness using an agent or manager during the 12 months following the

completion of this offering, subject to FINRA Rule 5110(f)(2)(D)(ii).

We have agreed to indemnify the placement agent against certain liabilities, including liabilities under the Securities Act and liabilities arising from breaches of representations and warranties contained in our engagement letter with the placement agent. We have also agreed to contribute to payments the placement agent may be required to make in respect of such liabilities.

Wainwright also served as our exclusive placement agent in connection with our public offering we consummated in April 2017, for which it received compensation.

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The engagement agreement provides that we will indemnify the placement agent against specified liabilities, including liabilities under the Securities Act of 1933, as amended (the “Securities Act”). The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the shares sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the placement agent would be required to comply with the Securities Act and the Exchange Act, including without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares of common stock, overallotment purchase rights and warrants by the placement agent acting as principal. Under these rules and regulations, the placement agent:

may not engage in any stabilization activity in connection with our shares; and

may not bid for or purchase any of our shares or attempt to induce any person to purchase any of our shares, other than as permitted under the Exchange Act, until it has completed its participation in the distribution of shares in this offering.

LEGAL MATTERS

The validity of the shares offered hereby will be passed upon for us by Loeb & Loeb LLP, Los Angeles, California.

EXPERTS

The financial statements and schedule as of December 31, 2017 and 2016 and for each of the three years in the period ended December 31, 2017 and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2017 incorporated by reference in this prospectus supplement have been so incorporated in reliance on the reports of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. The SEC's website contains reports, proxy and information statements and other information regarding issuers, such as us, that file electronically with the SEC. You may also read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C., 20549. You may also obtain copies of these documents at prescribed rates by writing to the SEC. Please call the SEC at 1-800-SEC-0330 for further information on the operation of its Public Reference Room.

Our website address is <http://www.cytrx.com>. The information on our website, however, is not incorporated into this prospectus supplement and is not, and should not be deemed to be, a part of this prospectus supplement.

This prospectus supplement is part of a registration statement that we filed with the SEC and does not contain all of the information in the registration statement. The full registration statement, including the exhibits and schedules thereto, may be obtained from the SEC or us, as provided below.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus supplement and the accompanying prospectus. Any statement in a document we incorporate by reference into this prospectus supplement or the accompanying prospectus will be considered to be modified or superseded to the extent a statement contained in this prospectus supplement or any other subsequently filed document that is incorporated by reference into this prospectus supplement modifies or supersedes that statement. The modified or superseded statement will not be considered to be a part of this prospectus supplement or the accompanying prospectus, as applicable, except as modified or superseded.

We incorporate by reference the following information or documents that we have filed with the SEC (excluding those portions of any Form 8-K that are not deemed “filed” pursuant to the General Instructions of Form 8-K):

our Annual Report on Form 10-K for the year ended December 31, 2017 filed with the SEC on March 16, 2018;

our Current Reports on Form 8-K filed with the SEC on March 1, 2018, March 22, 2018 and May 7, 2018;

our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 and filed with the SEC on May 8, 2018;

the description of our shares as described in our Registration Statement on Form 8-A filed under the Exchange Act on March 17, 1987 (File No. 000-15327), and any amendment or report filed for the purpose of updating any such description; and

the description of our Series A Junior Participating Preferred Stock Purchase Rights as described in our Registration Statement on Form 8-A filed under the Exchange Act on April 17, 1997 (File No. 000-15327), and any amendment or report filed for the purpose of updating any such descriptions.

We also incorporate by reference all documents filed pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement and prior to the termination of this offering (excluding those portions of any Form 8-K that are not deemed “filed” pursuant to the General Instructions of Form 8-K).

Statements made in this prospectus supplement or the accompanying prospectus or in any document incorporated by reference in this prospectus supplement or the accompanying prospectus as to the contents of any contract or other document referred to herein or therein are not necessarily complete, and in each instance reference is made to the copy of such contract or other document filed as an exhibit to the documents incorporated by reference, each such statement being qualified in all material respects by such reference.

We will provide without charge upon written or oral request to each person, including any beneficial owner, to whom a prospectus supplement is delivered, a copy of any or all of the documents which are incorporated by reference into this prospectus supplement but not delivered with the prospectus (other than exhibits to those documents unless such exhibits are specifically incorporated by reference as an exhibit in this prospectus supplement). Requests should be directed to:

CytRx Corporation

11726 San Vicente Blvd.

Suite 650

Los Angeles, California 90049

Attention: Corporate Secretary

(310) 826-5648

PROSPECTUS

\$150,000,000

We may offer and sell from time to time up to \$150,000,000 in the aggregate of shares of our common stock, shares of our preferred stock and warrants in amounts, at prices and on terms that we will decide at the time of the offering. These securities may be offered and sold separately, together or as units with other securities. Each share of our common stock to be offered and sold is accompanied by one Series A Junior Participating Preferred Stock Purchase Right that trades with our common stock.

We will provide the specific terms of these offers and sales in supplements to this prospectus. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement. You should read this prospectus and the prospectus supplement carefully before you invest. We may offer securities directly to investors or through agents, underwriters or dealers. If any agents, underwriters or dealers are involved in the sale of any of our securities, their names and any applicable purchase prices, fees, commissions or discount arrangements will be set forth in the prospectus supplement.

Our common stock is traded on The NASDAQ Capital Market under the symbol "CYTR." On April 3, 2017, the closing price of our common stock as reported on The NASDAQ Capital Market was \$0.46 per share. The aggregate market value of our outstanding common stock held by non-affiliates as of the date of this prospectus is approximately \$53.1 million, calculated based upon 115,541,079 shares of outstanding common stock held by non-affiliates and a per share price of \$0.46, the closing sale price of our common stock as reported on The NASDAQ Capital Market on April 3, 2017 (a date within 60 days of the date hereof). Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on the registration statement of which this prospectus is a part in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period if our public float, measured in accordance with such instruction, remains below \$75 million. As of the date hereof, we have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12-month period prior to and including the date of this prospectus.

An investment in our securities involves significant risks. Before purchasing any securities, you should consider carefully the risks referred to under "Risk Factors" on page 3 of this prospectus and in the prospectus supplement.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED THESE SECURITIES OR DETERMINED THAT THIS PROSPECTUS IS COMPLETE OR ACCURATE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is April 21, 2017

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement (Reg. No. 333-_____) utilizing the “shelf registration” process that we filed with the Securities and Exchange Commission, or the SEC, to permit us to offer and sell the securities described in this prospectus in one or more transactions. The plan of distribution of the securities is described in this prospectus under the heading “Plan of Distribution.”

As permitted by the rules and regulations of the SEC, the registration statement filed by us includes additional information not contained in this prospectus. You may read the registration statement and the other reports we file with the SEC at the SEC’s web site or at the SEC’s offices described below under the heading “Where You Can Find More Information .”

This prospectus provides you with a general description of the securities we may offer. Each time securities are sold, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and the prospectus supplement, together with additional information described in this prospectus under the heading “Where You Can Find More Information.”

You should rely only on the information provided in this prospectus and in the prospectus supplement, including any information incorporated by reference. For more details on information incorporated herein by reference, you should review the discussion contained under the heading “Incorporation of Certain Documents by Reference.” We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus and in the prospectus supplement. We are offering the securities only in jurisdictions where offers are permitted. You should not assume that the information in this prospectus or the prospectus supplement is accurate at any date other than the date indicated on the cover page of these documents.

NOTE ON FORWARD-LOOKING STATEMENTS

Some of the statements contained or incorporated by reference in this prospectus or in the prospectus supplement may include forward-looking statements that reflect our current views with respect to our research and development activities, business strategy, business plan, financial performance and other future events. These statements include forward-looking statements both with respect to us, specifically, and the biotechnology sector, in general. We make these statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Statements that include the words “expect,” “intend,” “plan,” “believe,” “project,” “estimate,” “may,” “should,” “anticipate,” “similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the

federal securities laws or otherwise.

All forward-looking statements involve inherent risks and uncertainties, and there are or will be important factors that could cause actual results to differ materially from those indicated in these statements. We believe that these factors include, but are not limited to, those factors set forth under the caption “Risk Factors” in this prospectus and in any prospectus supplement and under the captions “Business,” “Legal Proceedings,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” “Quantitative and Qualitative Disclosures About Market Risk” and “Controls and Procedures” in our most recent Annual Report on Form 10-K incorporated herein by reference, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus and the prospectus supplement. We undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

If one or more of these or other risks or uncertainties materializes, or if our underlying assumptions prove to be incorrect, actual results may vary materially from what we anticipate. All subsequent written and oral forward-looking statements attributable to us or individuals acting on our behalf are expressly qualified in their entirety by this Note. Before purchasing any of our securities, you should consider carefully all of the factors set forth or referred to in this prospectus and in the prospectus supplement that could cause actual results to differ.

INDUSTRY DATA

Unless otherwise indicated, information contained or incorporated by reference in this prospectus concerning our industry, including our general expectations and market opportunity, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those referred to under “Risk Factors” below in this prospectus. These and other factors could cause our future performance to differ materially from our assumptions and estimates.

TRADEMARKS

CytRx and LADR are some of our trademarks used in this prospectus. This prospectus also includes trademarks, trade names and service marks that are the property of other organizations. Solely for convenience, trademarks and trade names referred to in this prospectus sometimes appear without the ® and ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and trade names.

ABOUT CYTRX

Company Overview

CytRx Corporation (“we,” “us,” “our” or the “company”) is a biopharmaceutical research and development company specializing in oncology. We currently are focused on the clinical development of aldoxorubicin, our modified version of doxorubicin. We are also developing new anti-cancer drug conjugates that utilize our Linker Activated Drug Release (LADR™) technology.

We are a Delaware corporation, incorporated in 1985. Our corporate offices are located at 11726 San Vicente Boulevard, Suite 650, Los Angeles, California 90049, and our telephone number is (310)826-5648. Our web site is located on the worldwide web at <http://www.cytrx.com>. We do not incorporate by reference into this prospectus the information on, or accessible through, our website, and you should not consider it as part of this prospectus.

RISK FACTORS

Investing in our securities involves significant risks, including those set forth under the caption “Risk Factors” in our most recent Annual Report on Form 10-K incorporated herein by reference. The prospectus supplement relating to a particular offering will contain a discussion of risks applicable to an investment in the securities offered. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement together with all of the other information contained in the prospectus supplement or appearing or incorporated by reference in this prospectus.

USE OF PROCEEDS

Unless we state otherwise in the accompanying prospectus supplement, we intend to use the net proceeds from the sale of securities offered by this prospectus for working capital and general corporate purposes, including the clinical trials of our product candidates. General corporate purposes also may include funding of capital expenditures, payments in connection with possible future acquisitions and strategic investments and repayment of future indebtedness.

We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering. Pending application of the net proceeds as described above, we expect to invest the net proceeds in short-term, interest-bearing, investment-grade securities pursuant to our investment policy.

FINANCIAL RATIOS

If required in connection with any offer of preference equity securities, we will provide a ratio of preference dividends to earnings in the related prospectus supplement.

DIVIDEND POLICY

Our board of directors sets our dividend policy. We have never paid any cash dividends on our common stock and do not intend to declare cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings for use in the operation and expansion of our business, but we may determine in the future to declare or pay cash dividends on our common stock. Any future determination as to the declaration and payment of dividends will be at the discretion of our board of directors and will be dependent upon our results of operations and cash flows, our financial position and capital requirements, general business conditions, legal, tax, regulatory and any contractual restrictions on the payment of dividends, and any other factors our board of directors deems relevant.

THE SECURITIES THAT WE MAY OFFER

We, directly or through agents, dealers or underwriters designated from time to time, may offer, issue and sell, together or separately, up to \$150,000,000 in the aggregate of:

- shares of our common stock, par value \$0.001 per share;
- shares of our preferred stock, par value \$0.01 per share;
- warrants to purchase our common stock or preferred stock; and

any combination of the securities listed above, separately or as units, each on terms to be determined at the time of sale.

The common stock, preferred stock, warrants and units collectively are referred to in this prospectus as the “securities.”

We have summarized below the material terms of the various types of securities that we may offer. We will describe in the applicable prospectus supplement the detailed terms of the securities offered by that supplement. If indicated in the prospectus supplement, the terms of the offered securities may differ from the terms summarized below.

DESCRIPTION OF CAPITAL STOCK

As of March 31, 2017, our authorized capital stock consisted of 250,000,000 shares of common stock, \$0.001 par value per share, of which 118,722,895 shares were outstanding, and 5,000,000 shares of preferred stock, \$0.01 par value per share, of which 25,000 shares were designated as Series A Junior Participating Preferred Stock and 3,900 shares were designated as Series B Convertible Preferred Stock.

We have reserved all of the shares of our Series A Junior Participating Preferred Stock for issuance upon the exercise of the rights under our Shareholder Protection Rights Agreement described below.

In December 2016, we sold and issued 3,300 shares of our authorized shares of Series B Convertible Preferred Stock, all of which shares had been converted into shares of our common stock and retired as of March 31, 2017. We have no plan or arrangement to issue any remaining authorized shares of our Series B Convertible Preferred Stock.

The following summary of certain provisions of our common stock and preferred stock does not purport to be complete. You should refer to our amended and restated certificate of incorporation and our restated bylaws, which are filed with or incorporated by reference in the registration statement relating to this offering filed by us with the SEC. The summary below is also qualified by reference to the provisions of applicable Delaware corporation law.

Common Stock

Holders of our common stock are entitled to one vote per share on matters on which our stockholders vote, including with respect to the election of directors. Holders of common stock are entitled to receive dividends, if declared by our board of directors, out of funds that we may legally use to pay dividends. See the section of this prospectus entitled “Dividend Policy” for further information. If we liquidate or dissolve, holders of common stock are entitled to share ratably in our assets once our debts and any liquidation preference owed to holders of any then-outstanding preferred stock are paid. No shares of preferred stock will be outstanding immediately after the closing of this offering. All shares of common stock that are outstanding as of the date of this prospectus supplement are, and all shares we are selling in this offering, upon their issuance and sale, will be, fully-paid and nonassessable. Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions with respect to our common stock.

Preferred Stock

Our board of directors has the authority to issue shares of our authorized and unissued preferred stock in one or more Series and to fix the rights of each Series . These rights may include dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences, sinking fund terms, and the number of shares that constitute any Series . The board of directors may exercise this authority without any further action by our stockholders.

Our board of directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each Series that we sell under this prospectus in the certificate of designation relating to each such Series . We will incorporate by reference as an exhibit to the registration statement of which this prospectus is a part or as an exhibit to one or more current reports on Form 8-K, the Form of any certificate of designation that describes the terms of the Series of preferred stock we are offering before the issuance of the related Series of preferred stock. This description will include:

- the title and stated value;

- the number of shares we are offering;

- the liquidation preference per share;

- the purchase price per share;

- the dividend rate per share, dividend period, payment date or dates and method of calculation of dividends;

- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;

- our right, if any, to defer payment of dividends and the maximum length of any such deferral period;

- the procedures for any auction and remarketing, if any;

- the provisions for a sinking fund, if any;

the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;

any listing of the preferred stock on any securities exchange or market;

whether the preferred stock will be convertible into our common stock or other securities of ours, including warrants, and, if applicable, the conversion price, or how it will be calculated, and under what circumstances and the mechanism by which it may be adjusted, and the conversion period;

whether the preferred stock will be exchangeable into debt securities or other securities of ours, and, if applicable, the exchange price, or how it will be calculated, and under what circumstances it may be adjusted, and the exchange period;

voting rights, if any;

preemptive rights, if any;

restrictions on transfer, sale or other assignment, if any;

a discussion of any material United States federal income tax considerations applicable to the preferred stock;

the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;

any limitations on issuances of any class or Series of preferred stock ranking senior or on a parity with the Series of preferred stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and

any other specific terms, rights, preferences, privileges, qualifications or limitations of, or restrictions on, the preferred stock.

If we issue and sell shares of preferred stock pursuant to this prospectus, the shares will be fully paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

The laws of the State of Delaware, the state of our incorporation, provide that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of such preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

We believe the power to issue preferred stock will provide our board of directors with flexibility in connection with certain possible corporate transactions. The issuance of preferred stock, however, could adversely affect the voting power of holders of our common stock, restrict their rights to receive payment upon liquidation, and have the effect of delaying, deferring, or preventing a change in control which may be beneficial to our stockholders.

Anti-Takeover Measures

Delaware Law

Section 203 of the Delaware General Corporation Law is applicable to takeovers of certain Delaware corporations, including us. Subject to exceptions enumerated in Section 203, Section 203 provides that a corporation shall not engage in any business combination with any “interested stockholder” for a three-year period following the date that the stockholder becomes an interested stockholder unless:

prior to that date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, though some shares may be excluded from the calculation; or

on or subsequent to that date, the business combination is approved by the board of directors of the corporation and by the affirmative votes of holders of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Except as specified in Section 203, an interested stockholder is generally defined to include any person who, together with any affiliates or associates of that person, beneficially owns, directly or indirectly, 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation, any time within three years immediately prior to the relevant date. Under certain circumstances, Section 203 makes it more difficult for an interested stockholder to effect various business combinations with a corporation for a three-year period, although the stockholders may elect not to be governed by this section, by adopting an amendment to the certificate of incorporation or by-laws, effective 12 months after adoption. Our amended and restated certificate of incorporation and by-laws do not opt out from the restrictions imposed under Section 203. We anticipate that the provisions of Section 203 may encourage companies interested in acquiring us to negotiate in advance with the board because the stockholder approval requirement would be avoided if a majority of the directors then in office excluding an interested stockholder approve either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder. These provisions may have the effect of deterring hostile takeovers or delaying changes in control, which could depress the market price of our common stock and deprive stockholders of opportunities to realize a premium on shares of common stock held by them.

Charter and By-Law Provisions

In addition to the board of directors' ability to issue shares of preferred stock, our amended and restated certificate of incorporation and restated by-laws contain the following provisions that may have the effect of discouraging unsolicited acquisition proposals:

- our restated by-laws classify the board of directors into three classes with staggered three-year terms;
- under our restated by-laws, our board of directors may enlarge the size of the board and fill the vacancies;

our restated by-laws provide that a stockholder may not nominate candidates for the board of directors at any annual or special meeting unless that stockholder notifies us of its intention a specified period in advance and provides us with certain required information;

stockholders who wish to bring business before the stockholders at our annual meeting must provide advance notice; and

our restated by-laws provide that special meetings of stockholders may only be called by our board of directors or by an officer so instructed by our board.

Our restated by-laws also provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the company to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law; or
- any action asserting a claim governed by the internal affairs doctrine.

Our restated by-laws further provide that any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the company is deemed to have notice of and consented to the foregoing provision.

Shareholder Protection Rights Agreement

Our board of directors adopted a Shareholder Protection Rights Agreement, or Rights Agreement, dated April 16, 1997, as amended, between us and American Stock Transfer & Trust Co., as Rights Agent. The Rights Agreement will

expire on April 16, 2022, unless renewed or extended by our board of directors. A Series of our preferred stock, designated as Series A Junior Participating Preferred Stock, par value \$0.01 per share, was created in accordance with the Rights Agreement. The Rights Agreement is designed to deter coercive takeover tactics, including the accumulation of shares in the open market or through private transactions, and to prevent an acquirer from gaining control of us without offering a fair and adequate price and terms to all of our stockholders. As such, the Rights Agreement is intended to enhance our board of directors' ability to protect stockholder interests and help to assure that stockholders receive fair and equal treatment in the event any proposed takeover of CytRx is made in the future. Pursuant to the Rights Agreement, our board of directors declared a dividend distribution of one preferred stock purchase right for each outstanding share of our common stock. The preferred stock purchase rights are attached to, and trade with, our common stock. The purchase rights are exercisable only upon the occurrence of certain triggering events described in the Rights Agreement.

Transfer Agent

The transfer agent for our common stock is American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005.

DESCRIPTION OF WARRANTS

We may offer and issue warrants to purchase shares of our common stock or preferred stock. The warrants may be issued independently or as a part of units consisting of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock. If the warrants are issued pursuant to warrant agreements, we will so specify in the prospectus supplement relating to the warrants being offered pursuant to the prospectus supplement.

The following description will apply to the warrants offered by this prospectus unless we provide otherwise in the applicable prospectus supplement. The applicable prospectus supplement for a particular Series of warrants may specify different or additional terms. The forms of any warrant certificates or warrant agreements evidencing the warrants that we issue will be filed with the SEC and incorporated by reference into this prospectus, and you should carefully review such documents.

The prospectus supplement will describe the following terms of warrants to purchase our common stock, preferred stock or debt securities to the extent applicable:

the title of the warrants;

the common stock or preferred stock for which the warrants are exercisable;

the price at which the warrants will be issued and the exercise price of the warrants;

the aggregate number of warrants offered;

the number of shares of common stock or preferred stock that may be purchased upon the exercise of each warrant;

whether the warrants are being offered separately or as a part of units consisting of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock;

the terms of any right by us to redeem the warrants;

the date on which the right to exercise the warrants will commence and the date on which this right will expire;

the procedures for exercising the warrants;

the terms on which the warrants may be amended;

the terms of any adjustments in the warrant exercise price and the number of shares of common stock or preferred stock purchasable upon the exercise of each warrant to be made in certain events, including the issuance of a stock dividend to holders of common stock or preferred stock or a stock split, reverse stock split, combination, subdivision or reclassification of common stock;

the effect on the warrants of our merger or consolidation with another entity or our sale of all or substantially all of our assets;

the maximum or minimum number of warrants which may be exercised at any time; and

- the material United States federal income tax consequences applicable to the warrants and their exercise.

Holders of warrants to purchase common stock or preferred stock will not be entitled, by virtue of being such holders, to vote, consent, receive dividends, receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter, or to exercise any rights whatsoever as our stockholders.

Warrants may be exercised at any time up to the close of business on the expiration date set forth in the prospectus supplement relating to the warrants offered thereby. After the close of business on the expiration date, unexercised warrants will become void. Upon our receipt of the exercise price of the warrants upon the due exercise of the warrants, we will, as soon as practicable, forward the securities purchasable upon exercise. If less than all of the warrants represented by such warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

DESCRIPTION OF UNITS

We may offer and issue units that consist of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock. For example, we may elect to issue units for a specified price per unit, with each unit consisting of one share of our common stock or preferred stock and one warrant to purchase an additional share of our common stock or preferred stock at a specified price. The holder of a unit will also hold each of the securities that is included in the unit.

We have provided in the preceding sections of this prospectus a general description of our common stock, preferred stock, and warrants that we may offer. If we elect to offer units, we will describe the specific terms of the units in a supplement to this prospectus. Among other things, the prospectus supplement will describe, to the extent applicable:

the price of each unit;

the securities comprising each unit;

the exercise price of the warrants comprising part of the units;

the aggregate number of units offered;

the number of shares of common stock or preferred stock that may be purchased upon the exercise of each warrant comprising part of a unit;

the terms of any right by us to redeem any of the securities comprising the units;

the date on which the right to exercise the warrants forming part of the units will commence and the date on which this right will expire;

any transfer restrictions on the units, including whether the securities comprising the units may be transferred separately;

the terms on which the units or warrants forming part of the units may be amended;

with respect to preferred stock forming part of the units, the other matters listed above under “Description of Capital Stock—Preferred Stock”;

with respect to warrants forming part of the units, the other matters listed above under “Description of Warrants”; and

the material United States federal income tax consequences applicable to the units.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

- through agents to the public or to investors;

- to one or more underwriters for resale to the public or to investors;

in “at the market” offerings, within the meaning of Rule 415(a)(4) of the Securities Act of 1933, as amended, or the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;

- directly to investors; or

- through a combination of these methods of sale.

We will set forth in a prospectus supplement the terms of an offering of shares of our securities, including.

- the name or names of any agents or underwriters;

- the purchase price of the securities being offered and the proceeds we will receive from the sale;

- any over-allotment options under which underwriters may purchase additional securities from us;

- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- the public offering price; and
- any discounts or concessions allowed or re-allowed or paid to dealers.

We may distribute the securities from time to time in one or more transactions;

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

We may also, from time to time, authorize dealers, acting as our agents, to offer and sell securities upon the terms and conditions set forth in the applicable prospectus supplement. We, or the purchasers of securities for whom the underwriters may act as agents, may compensate underwriters in the Form of underwriting discounts or commissions, in connection with the sale of securities. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the Form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agent. Unless otherwise indicated in a prospectus supplement, an agent will be acting on a "best efforts" basis and a dealer will purchase securities as a principal, and may then resell the common stock at varying prices to be determined by the dealer.

We will describe in the applicable prospectus supplement any compensation we will pay to underwriters or agents in connection with the offering of securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers. The dealers and agents participating in the distribution of securities may be deemed to be underwriters, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against certain civil liabilities, including liabilities under the Securities Act and to reimburse these persons for certain expenses. We may grant underwriters who participate in the distribution of securities we are offering under this prospectus an option to purchase additional shares to cover over-allotments, if any, in connection with the distribution.

To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than we sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them is repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

Any underwriters who are qualified market makers on The NASDAQ Capital Market may engage in passive market making transactions in the securities on The NASDAQ Capital Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Certain underwriters, dealers or agents and their associates may engage in transactions with and perform services for us in the ordinary course of our business.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. The SEC's website contains reports, proxy and information statements and other information regarding issuers such as us that file electronically with the SEC. You may also read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549, and may obtain copies of these documents at prescribed rates by writing to the SEC. Please call the SEC at 1-800-SEC-0330 for further information on the operation of its Public Reference Room.

Information about us is also available at our website at www.cytrx.com; however, information on our website is not incorporated into this prospectus and is not a part of this prospectus.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" the information we have filed with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus. Any statement in a document we incorporate by reference into this prospectus will be considered to be modified or superseded to the extent a statement contained in this prospectus or any other subsequently filed document that is incorporated by reference into this prospectus modifies or supersedes that statement. The modified or superseded statement will not be considered to be a part of this prospectus, except as modified or superseded.

We incorporate by reference the following information or documents that we have filed with the SEC (excluding those portions of any document that are "furnished" and not "filed" in accordance with SEC rules):

- our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on March 15, 2017;
- our Current Reports on Form 8-K and Form 8-K/A filed with the SEC on January 6, 2017, January 13, 2017, February 24, 2017 and March 15, 2017, respectively;
- the description of our securities as described in our Registration Statement on Form 8-A filed under the Exchange Act on March 17, 1987 (File No. 000-15327), and any amendment or report filed for the purpose of updating any

such description; and

the description of our Series A Junior Participating Preferred Stock Purchase Rights as described in our Registration Statement on Form 8-A filed under the Exchange Act on April 17, 1997 (File No. 000 15327), and any amendment or report filed for the purpose of updating any such descriptions.

We also incorporate by reference all documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date on which we filed the registration statement of which this prospectus is a part and prior to the termination of this offering (excluding those portions of any document that are “furnished” and not “filed” in accordance with SEC rules).

Statements made in this prospectus or in any document incorporated by reference in this prospectus as to the contents of any contract or other document referred to herein or therein are not necessarily complete, and in each instance reference is made to the copy of such contract or other document filed as an exhibit to the documents incorporated by reference, each such statement being qualified in all material respects by such reference.

You may obtain a copy of the foregoing documents from us without charge by writing or calling us at the following address and telephone number: 11726 San Vicente Blvd., Suite 650 Los Angeles, California 90049, Attention: Corporate Secretary; (310)826-5648.

LEGAL MATTERS

The validity of the securities being offered hereby has been passed upon for us by TroyGould PC, Los Angeles, California. TroyGould PC and some of its attorneys own shares of our common stock constituting in the aggregate less than 1% of our outstanding shares of common stock.

EXPERTS

The financial statements and schedule as of December 31, 2016 and 2015 and for each of the three years in the period ended December 31, 2016 and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2016 incorporated by reference in this prospectus have been so incorporated in reliance on the reports of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

5,600,000 Shares of Common Stock

PROSPECTUS SUPPLEMENT

H.C. Wainwright & Co.

May 11, 2018